WORLD OCEAN CIRCULATION EXPERIMENT

WOCE Global Data
Version 2.0
2000

WOCE International Project Office, Southampton, UK

Acknowledgements

The World Ocean Circulation Experiment is an international project developed with the resources, efforts and co-operation of many countries, organisations, institutions and individuals. It is not possible to identify and thank individual sources of data here, but the contributions of Principal Investigators are gratefully acknowledged. Information about data originators is supplied wherever possible in the documentation that accompanies the data. Users of WOCE Global Data are requested to make every effort to acknowledge this data resource. The full reference for this CD-ROM set is given at the base of this page.

The WOCE Data Products Committee devised the original concept of the WOCE Global Data CD-ROMs and guided their production and content. The CD-ROMs were constructed by the Data Assembly Centres, Special Analysis Centres and the Data Information Unit. Their contribution to this package is also gratefully acknowledged.

The WOCE International Project Office acknowledges the support of the U.S. National Oceanographic Data Center (NODC) in funding the production of copies of the WOCE Global Data Version 2.0 CD-ROM package.

WOCE Data Products Committee, 2000. WOCE Global Data, Version 2.0.
WOCE International Project Office, WOCE Report No. 171/00, Southampton, UK.

Introduction

The World Ocean Circulation Experiment is the part of the World Climate Research Programme that is providing improvements in ocean circulation models for use in climate prediction. The oceans are a key element in the climate system in the way they transport heat and freshwater and exchange these with the atmosphere. The oceans also sequester CO_2 released by the burning of fossil fuels. WOCE has used resources from nearly 30 countries to make unprecedented in-situ and satellite observations of the global ocean from 1990-1998 and to observe poorly-understood but important physical processes.

New in Version 2.0

WOCE Global Data Version 1.0 (1998) was the first publication of the WOCE data resource in one easy accessible form. Since Version 1.0 there has been significant effort focused on assembling the remaining WOCE data and metadata. The result of these activities is reflected in the large increases of data and information contained in Version 2.0. Additionally, the data in Version 2.0 have increased consistency in formatting, labelling, and content.

Contents

The package consists of 14 CD-ROMs of WOCE data, documentation and products. Information on the contents of the disks and getting started are provided in this booklet.

The CD-ROMs

Getting Started

The CD-ROMs in this package contain WOCE data and documentation available in June 2000. The disks are designed to be navigated with an internet browser (version 4.0 or above). Each root directory contains a **welcome.htm** file which will lead you to the data, products and metadata. Please also look at the ascii files **readme.txt** which provide further information about directory structures.

1. Place the disk in your computer's CD drive
2. Start the Internet browser
3. Using the browser "File" menu open the file **welcome.htm** or **index.htm** in the disk's root directory.

The welcome files contain links that will take you to the data and documentation. The pages of this booklet provide information on the content of the individual CD-ROMs.

The CD-ROMs are platform independent and made to ISO 9660 Level 2 standards. Documentation is in ASCII, HTML or Adobe Acrobat PDF files. Recent versions of PDF readers and internet browsers can be found on the Data Information Unit (DIU) CD and at:

http://www.adobe.com/products/acrobat/readstep.html
http://www.microsoft.com/windows/ie/default.htm
http://www.netscape.com/computing/download/index.html?cp=hom05p1

Data Formats

The data files are presented in a variety of documented formats (see following pages for information on each data type). The majority of the data are in netCDF, a self-describing binary format, and the rest are ascii. This important change from Version 1.0 (all ascii) will help users perform integration of the variety of data types by allowing easier cross-dataset searching. Utilities to manipulate the data, and a netCDF "Primer" for novice users are included on the DIU CD-ROM.

The final version of the WOCE Global Data (due in 2002) will have completely consistent formats and utilities for cross-dataset search and retrieval.

The WOCE Data System

The WOCE data management structure is a distributed system which utilises the expertise of scientists in order to attain the highest possible data quality and documentation. Each measurement technique produces a different data stream, and the data system brings them together to form a single data resource for numerous investigators and analysis groups.

The system consists of several elements with the flow being from Principal Investigator to Data Assembly Centre to Special Analysis Centre to users and the WOCE Archive.

Data Assembly Centres

are managed by scientists, handle assembly and quality control of data sets, and generate data products.

Special Analysis Centres

perform data analysis and synthesis functions, including the generation of derived data sets

The WOCE Archive

is being developed at the U.S. National Oceanographic Data Center and will be distributed across the centres of the World Data Centre system.

The Data Information Unit

is the central source of information on the status of WOCE, tracking all data collection, processing and archiving activities, and acting as the primary interface between the WOCE data system and all users.

Data Information & Bathymetry Data

Introduction

Contents

Formats

WOCE DATA INFORMATION UNIT

This CD-ROM summarises the design, implementation and status of WOCE. It details the elements of the experiment, the available datasets, the participating scientists, bibliography, and the software required to access the data on the WOCE Global Data Version 2.0 CD-ROMs. In addition, it includes the bathymetry datasets from the WOCE cruises.

Tables & figures summarising datasets assembled for WOCE.
Key publications relating to the design and implementation.
Bibliography of refereed and unpublished papers.
The complete set of International WOCE Newsletters.
Who's who of scientists containing addresses and e-mail.
A description of netCDF and related resources needed to interpret the datasets.
Bathymetry datasets in (truncated) NGDC MGD77 format.
Software including Acrobat Reader and browsers.

HTML, Adobe Acrobat PDF and ASCII.

Produced by the Data Information Unit at University of Delaware
http://oceanic.cms.udel.edu/woce/

WOCE HYDROGRAPHIC PROGRAMME

The WOCE Hydrographic Program Office (WHPO) is the DAC for the WHP. The tasks of the WHPO are to gather, merge, and make available data from the WHP (CTD and water sample data); to improve the adherence of data to WHP format and content specifications; and to assemble and provide relevant documentation. The WHPO has focused on making the maximum number of data files available to the community via acquisition of new files,updates to existing files, merging of tracer data into the bottle files, and assembling documentation.

The CD-ROM contains data and documentation for the WHP One-Time Survey cruises, for the WHP Repeat Hydrography cruises, for the WHP Time Series Stations, and for WOCE-related CTD/hydrographic cruises. Some WHP data at the DAC remain "non public" and are not included on this CD-ROM.

The bulk of the data are ascii files in the formats as described in WHP Office Report 90-1, WOCE Report No. 67/91, "Requirements for WHP Data Reporting".

Produced by the WHP Office at UCSD Scripps Institution of Oceanography
http://whpo.ucsd.edu/

WOCE UPPER OCEAN THERMAL

The Upper Ocean Thermal DAC primarily assembles temperature profile data collected from the upper 1000m. The UOT DAC has a number of members who share responsibilities in assembling the data and information. Data come from both real-time and delayed mode sources. Yearly collections are made and passed to designated participants for scientific assessment. The data then return to the main archive centre at the U.S. NODC. More information about the roles of each participant is provided on the CD-ROM.

Much of the data on the CD-ROM were collected using XBTs but there are also measurements from CTDs and bottles. A significant fraction of the data were transmitted within 30 days of collection through the Global Telecommunication System. Information about the volume and characteristics of the data sent in this manner is also included. All data from 1990 to 1996 have passed through scientific assessment while those from later years have gone through data centre assessment.

The data are in netCDF format, with one station per file. Groups of files are arranged in compressed files by ocean basin and quarter of the year. Each such compressed file also has an index file that lists the ship identifier, location, date, types of profiles and file name for each station.

Produced by all the members of the UOT DAC
http://www.nodc.noaa.gov/GTSPP/gtspp-home.html

WOCE SUBSURFACE FLOATS

The purpose of the WOCE Subsurface Float DAC is to create a consolidated subsurface-current data set usable by scientists for statistical studies and incorporation into ocean models. The intent is to collect subsurface Lagrangian data in the best and cleanest version available. When data is acquired by the DAC, effort is made to also acquire background information (data reports, e.g.) and a list of references.

WOCE non-acoustic Autonomous Lagrangian Circulation Explorer (ALACE) float data for the Pacific (through December 1996) and for the Drake Passage are included on this CD-ROM. So is a subset of the data from the Deep-Basin Experiment in the Western South Atlantic. Other WOCE-era and pre-WOCE experiments are included, such as the AMUSE and BOUNCE experiments in the Atlantic.

All data are available in WHOI's "FLOATER" format, zipped by experiment. Most of the recent experiments are available in netCDF format, again zipped to one experiment per file.

Produced by the Float DAC at Woods Hole Oceanographic Institute
http://wfdac.whoi.edu/

Surface Drifter Lagrangian Data

Introduction

WOCE SURFACE VELOCITY PROGRAMME

The Surface Velocity Programme DAC is composed of the Global Drifter Center (GDC) at AOML and the Marine Environmental Data Service (MEDS) of Canada. The GDC assembles drifter data from all sources, and provides data quality assessment. They apply an interpolation scheme to generate velocity estimates every 6 hours for all buoys that are operating. The original data as well as the interpolated data are sent to MEDS every six months for archiving and distribution.

Contents

The CD-ROM contains data from drifters deployed before (beginning in 1979), and during the WOCE period (1990-1998). All data have passed through the same quality assessment procedures and interpolations. The pre-WOCE data that bracket the WOCE period provide a context for WOCE. The CD -ROM contains the interpolated data as well as information about each drifter, and analyses generated by the GDC from the data.

Formats

The data are in netCDF format, with one file containing all of the data from one year and one ocean basin.

Produced by the Drifter DACs at MEDS, Canada and AOML, USA
http://www.meds-sdmm.dfo-mpo.gc.ca/meds/Prog_Int/woce/WOCE_SVP/SVP_e.html
http://www.aoml.noaa.gov/phod/dac/

Current Meter Data

Introduction

WOCE CURRENT METER MOORINGS

This CD-ROM contains a searchable collection of WOCE current meter records maintained by the Current Meter Data Assembly Center (CMDAC). The disk includes current meter records and associated data reports, maps, descriptions, flow statistics, time series and spectra.

Contents

WOCE Current Meter Records
Data Inventory
Current Meter data report archive
WOCE flow statistics
Brief summary of the WOCE current meter programme and experiments

Formats

Data are supplied in netCDF and Stranger (an ASCII format)

Produced by the Current Meter DAC at Oregon State University
http://kepler.oce.orst.edu/cmdac.html

WOCE ACOUSTIC DOPPLER CURRENT PROFILERS

Introduction

Acoustic Doppler Current Profiler (ADCP) data are provided for the WOCE cruises, WOCE-affiliated and non-WOCE cruises as held by the Joint Archive for Shipboard ADCP, a collaboration of the US National Oceanographic Data Center (NODC) and the E. Firing ADCP Laboratory at the University of Hawaii. WOCE cruises are received at the ADCP DAC in a science-ready form, i.e., processed, edited, and calibrated.

Contents

The ADCP DAC receives finalized data at the highest resolution in time and space as available. For this CD-ROM, reduced sets of nominally hourly and ten-meter depth averages of the absolute currents are provided. Documentation for each cruise is prepared and included with the data. Products include cruise track and multiple-level vector plots.

Formats

The data are stored in netCDF and in the NODC ASCII standard subset format.

Produced by the Japan Oceanographic Data Center and US NODC
http://www.jodc.jhd.go.jp/inf/data/current/shipboard-adcp.html
http://ilikai.soest.hawaii.edu/sadcp

WOCE SEA LEVEL DATA

Introduction

Responsibility for data management of the in-situ sea level data set for WOCE has been jointly vested in the University of Hawaii Sea Level Center (UHSLC) and the British Oceanographic Data Centre (BODC). The two centres perform complementary activities, with the UHSLC acting as the 'fast delivery' centre, providing rapid access to data for those involved in satellite altimetry, and BODC as the 'delayed mode' centre, providing the fully quality controlled comprehensive data set. The CD contains data collected before and during the WOCE period.

Contents

WOCE 'Fast delivery' Sea Level Data Set (including additional data from the UHSLC Research Quality Data Set)
WOCE 'Delayed-mode' Sea Level Data Set
Tidal Constants from the WOCE Sea Level Data Set
PSMSL Monthly and Annual Mean Sea Level Data Set
GLOSS Station Handbook

Formats

Data are supplied in netCDF and ASCII formats

Produced by the Sea Level DACs at the UHSLC, USA and BODC, UK
http://uhslc.soest.hawaii.edu/
http://www.bodc.ac.uk/projects/wocedac/wocesldac.html

WOCE SURFACE METEOROLOGY

Introduction

This CD-ROM contains a collection of quality evaluated underway surface meteorology data from WOCE research vessels. The disk includes standard meteorology and navigation data, associated data quality reports, cruise maps, and documentation.

Contents

Underway data for over 400 WOCE cruises.
Meteorology data: winds, air & sea temperature, atmospheric pressure, humidity, precipitation, radiation, and clouds.
Navigation data: vessel position, heading, course, and speed.

Formats

Data are supplied in netCDF format, documents in HTML and PDF formats.

Produced by WOCE-MET at COAPS, Florida State University
http://www.coaps.fsu.edu/woce/

WOCE SURFACE FLUXES

Introduction

This CD-ROM contains a collection of surface flux fields either produced by the SAC or provided to the SAC for distribution. The disk includes tropical ocean psuedostress, global ocean stress fields, global flux climatologies, related documentation and plots.

Contents

Tropical Pacific and Indian Ocean psuedostress from FSU, 1961-99; 1970-99.
Tropical Atlantic Ocean pseudostress, sea temperature from ORSTOM, 1964-99.
Tropical Indian Ocean Fluxes from FSU, 1960-89.
Global air-sea heat, momentum, and freshwater flux climatologies from SOC, 1980-93.
Global daily mean NOGAPS stress from the U.S. Navy, 1997-99.

Formats

Data are supplied in netCDF and ASCII formats, documents in HTML, PDF, and text formats.

Produced by WOCE-MET at COAPS, Florida State University
http://www.coaps.fsu.edu/WOCE/SAC/

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WOCE SATELLITE SEA SURFACE HEIGHT

NASA's Physical Oceanography DAAC, located at the Jet Propulsion Laboratory, California Institute of Technology, manages oceanographic data collected by satellites, with special emphasis on sea surface height, temperature and winds. PO-DAAC is funded by NASA's Earth Observing System's Data and Information System.

This CD-ROM contains sea level from the TOPEX/POSEIDON altimeter spanning 10/1992 through 12/1999. The data are gridded on 0.5 and 1 degree grids, both digital data and GIF images are included, software to animate the GIF images, and abundant documentation are also included.

The data are in netCDF format. Sample routines to scan and read the data are included, but they assume the user has installed the netCDF library.

Produced by PO-DAAC, JPL, California Institute of Technology.
http://podaac.jpl.nasa.gov

WOCE SATELLITE SEA SURFACE TEMPERATURE

NASA's Physical Oceanography DAAC, located at the Jet Propulsion Laboratory, California Institute of Technology, manages oceanographic data collected by satellites, with special emphasis on sea surface height, temperature and winds. PO-DAAC is funded by NASA's Earth Observing System's Data and Information System.

This CD-ROM contains sea surface temperature from the AVHRR instrument on the NOAA-n satellites, with Pathfinder algorithm, for 1/1990 to 12/1999. The data are gridded on 0.5 and 1 degree grids, both digital data and GIF images are included, software to animate the GIF images, and abundant documentation are also included.

The data are in netCDF format. Sample routines to scan and read the data are included, but they assume the user has installed the netCDF library.

Produced by PO-DAAC, JPL, California Institute of Technology.
http://podaac.jpl.nasa.gov

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WOCE SATELLITE WIND DATA

Introduction

This CD-ROM contains weekly and monthly mean wind fields calculated from ERS1 and ERS2 satellites launched by ESA (European Space Agency) respectively in 1991 and 1995, and from NSCAT (NASA scatterometer) launched by NASA on board the Japanese satellite ADEOS1 in 1996. This CD-ROM includes a map browser, online documentation, temporal and geographical extraction tool, and reading software.

Contents

The following parameters are provided on a 1 x 1 degree grid:

- Wind (module, meridional and zonal components)
- Wind Stress (module, meridional and zonal components)
- Wind divergence
- Wind stress curl

These fields are provided with an estimation of the objective mapping error at each grid point.

Formats

Data can be extracted in netCDF, ASCII and binary formats.

Produced by Departement d'Océanographie Spatiale at IFREMER France
http://www.ifremer.fr/cersat

eWOCE: ELECTRONIC ATLAS OF WOCE DATA

Introduction

The available UOT and WHP data have been compiled into integrated, global data sets. When used with the Ocean Data View visualization software, these data sets constitute an "Electronic Atlas of WOCE Data" that permits graphical display and interactive analysis of the data. With extensive interactive controls such as user-defined plot configuration, zooming, auto-scaling, colour adjustment, station/sample selection, and easy addition of a variety of derived variables, this electronic atlas complements the printed atlases that are now in preparation.

Contents

The CD-ROM contains UOT data for the Atlantic, Indian and Pacific, as well as hydrographic and tracer data from the WOCE Hydrographic Programme. Included is the Ocean Data View software that allows the interactive exploration of the data. More than 200 property distributions plots along WHP sections are provided. These plots can be viewed using your web browser via simple, interactive map interfaces.

Formats

Data are in binary format, allowing dense storage and instant access by means of the Ocean Data View software.

Produced by R. Schlitzer at the Alfred Wegener Institute, Bremerhaven.
http://www.awi-bremerhaven.de/GEO/eWOCE/

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http://www.soc.soton.ac.uk/OTHERS/woceipo/ipo.html

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